

AN AMENDMENT TO THE TRANSPORTATION PLAN FOR 2025

Regarding

The Purdue University Area

Greater Lafayette Area
Transportation and Development Study

Tippecanoe County Area Plan Commission
20 North Third Street
Lafayette, Indiana 47901-1209

Mark Hermodson, President through January 19, 2005
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Adopted by the Tippecanoe County Area Plan Commission

Introduction

A revision to the Transportation Plan for 2025 is being requested in order to better serve mobility needs in the Purdue University area. The requested changes to the 2025 Transportation Plan are based on the Transportation and Parking Plan, September 2001¹ (the Plan), developed by Pflum, Klausmeier and Gehrum Consultants, Inc. with extensive input from Purdue, CityBus, West Lafayette, and Tippecanoe County officials, and the community. Ongoing discussions of the Plan between Purdue and the City of West Lafayette have resulted in modifications to the original Plan. The requested revisions presented herein represent the concurrence of all responsible agencies at this time.

Purpose and Need

The West Lafayette campus of Purdue University is changing in dramatic ways with the addition of new buildings to meet the demand for new research and classrooms. In the last four years, nine new major buildings have been constructed. Currently, there are four major facilities and one addition under construction. Over the next four years, eight more buildings are expected to be built.

The University is engaged in a continuous process of updating the campus Master Plan, which is intended to guide University development for the next 25 years. The current Plan, shown in Figure 1, includes the addition of a large number of new buildings throughout the campus. A significant number of these, including those in Discovery Park, will be located on the part of campus located south of State Street. Many of these additions will be located as close to the core of the campus as possible in order to maintain a 10-minute walking time between classes. This is a key element in the operation of the University because any lengthening of the time between classes would result in a reduction

¹ The Transportation and Parking Plan may be viewed at the Tippecanoe County Area Plan Commission.

of available class time. This would complicate the scheduling process for a typical four-year curriculum and substantially increase operational costs. Increasing the density of the campus will have a dramatic effect on the already difficult safety issues resulting from conflicts between pedestrians and vehicles. The continued growth in students, faculty, and staff has resulted in a transportation system that does not meet the needs of pedestrians, bicyclists, and motorists. Furthermore, a change in the number of students who drive cars to campus has increased the demand for parking and conflicts between pedestrians and motorists.

In order to improve the safety of pedestrians, the transportation component of the Master Plan reduces pedestrian-vehicular conflict by encouraging use of travel modes other than cars on campus. The Plan is designed to remove cars from the core of the campus as much as possible.

Goals and Key Features of the Plan

As stated in the Transportation and Parking Plan, the goals of this Plan are to:

- Provide safe and efficient movement of pedestrians, bicyclists, transit, and other vehicles to, from, through, and around campus.
- Encourage pedestrian traffic and discourage vehicular traffic in the central core of the campus, in adherence with the recommendations of the Campus Master Plan.
- Provide proximate parking choices for the campus's different "customer" groups, including faculty, staff, commuting students, resident students, and visitors.

The key features of the Plan meet these goals and include the following:

- Provide a perimeter boulevard to facilitate travel through and around the campus.
- Discourage through traffic on streets that are internal to campus through the use of traffic calming measures.

- Encourage alternative modes of transportation by enhancing the service potential of transit, providing bicycle lanes on-street, and providing safe pedestrian pathways and crossings.
- Reduce vehicular delay at critical intersections.
- Reassign student parking to areas along perimeter roadways served by transit.

These goals and features are compatible with the goal and objectives established for the transportation planning process in Tippecanoe County (see Transportation Plan for 2025, page 112). Several Plan features help to implement the goal and objectives of the transportation planning process for the County, including:

- The emphasis on transit, pedestrian, and bicycle modes of travel to provide a balanced multi-modal transportation system.
- The use of existing streets to develop a revised system of arterials and collectors.
- The use of traffic calming principles to minimize pedestrian/vehicle conflicts.
- The provision of parking facilities along the major street network to maximize accessibility to the largest traffic generator in the county.

The Plan provides convenient multi-modal access to the entire area for all students, including those with low incomes. The provision of a highly functional transit system for the students in the campus area permits them to have access to most employment opportunities in the area. Furthermore, with Purdue being the largest employer in the county, there are employment opportunities for low income people throughout the cities of Lafayette and West Lafayette that are easy to access by using the transit system.

Reasons to Implement the Plan

Purdue University is the largest traffic generator and the largest employer in the County. The impact of the traffic generated can be seen several miles from the campus. Furthermore, the University has a significant impact on the economy of the County including employment, housing, and retail.

Because of the size of the university, the city streets, county roads, and state highways in the area of the campus are impacted by campus life. The campus buildings, parking facilities, and transportation facilities including sidewalks, bike lanes, and access streets need to be integrated with the streets, roads, and highways to serve motorists traveling through or around the campus as well as those destined for it.

With the construction of new U.S. 231 on the south and west sides of campus, through-traffic can be routed around the campus. Following completion of the segment south of campus, S.R. 26 will be relocated off of State Street. The Plan takes advantage of this change in state highway locations to resolve the longstanding conflicts between motorists and pedestrians on State Street. Over the last 20 years, these conflicts have increased substantially.

In order to resolve these and other problems, the Plan proposes that a perimeter boulevard be constructed around the campus. This Plan will reduce the impact of pedestrians on public streets and provide an improved campus by eliminating most vehicles in the core campus. Furthermore, other modes of travel including pedestrian, bicycle, and transit will be improved. This Amendment requests addition of only those portions of the Transportation and Parking Plan that can be considered to be part of the arterial and collector street network serving the area. It does not include elements that are already in the Transportation Plan for 2025.

The new U.S. 231 and relocated S.R. 26 will route heavy trucks around the congested campus area. However, there is still a need to provide access to the campus for service and delivery vehicles. All buildings on campus will retain access that is adequate for deliveries.

Security for the proposed road network is an improvement over the existing network because traffic is routed outside of the dense pedestrian area in the core of the campus. While there are very few trucks carrying hazardous materials on

these streets, the proposed plan will move them to the perimeter boulevard or to the new U.S. 231. There are no bridges or tunnels that are subject to security issues.

Description of the System

The Transportation and Parking Plan proposes a system of public arterials and collectors that are integrated with campus streets and parking facilities to provide a network that best serves pedestrian, bicycle, transit, and vehicular modes of travel. The street corridors will be designed using context sensitive design principles including lighting and landscaping near sidewalks and in the medians where appropriate. The System Plan is shown in Figure 2 and has the following features, which are included in this Amendment:

1. **Perimeter Boulevard**

The perimeter boulevard around the campus includes existing Northwestern Avenue, Stadium Avenue, McCormick Road, Airport Road, and Harrison Street. These segments of the perimeter boulevard will be constructed as a 4-lane landscaped parkway with a raised median and sidewalks. A bike lane will be included for each direction of travel. The east side of the perimeter road will be a pair of one-way streets with southbound traffic on Grant Street, and northbound traffic on Chauncey Avenue, State Street, Northwestern Avenue, and Vine Street. A gateway intersection is planned at Harrison Street/South Intramural Drive using a roundabout and aesthetic improvements. This multimodal corridor will be provided with lighting that is appropriate for pedestrians, bicyclists, and motorists. The boulevard will be designed to accommodate local delivery trucks. However, through-trucks will be discouraged from using the perimeter boulevard.

2. Williams Street Connection

Tapawingo Drive will be extended from S.R. 26 to U.S. 231 at Williams Street, including a traffic signal at the intersection. Tapawingo is already in the 2025 Plan and is scheduled for construction in 2005. Williams should be reconstructed to add eastbound left-turn and right-turn lanes at its intersection with U.S. 231 and to change the profile of the street. It will include a partial median, bike lanes, landscaping, enhanced pedestrian crossings, and an eastbound left-turn lane at Chauncey Street. The Tapawingo/Williams connector is an important part of the Plan for the area because it diverts traffic from State Street to south campus.

3. North Intramural Drive Extension

A new 4-lane boulevard will be constructed west of the Purdue Stadium, between the intersections of Northwestern Avenue/Cherry Lane and Stadium Avenue/North Intramural Drive. The new roadway will provide relief for the over-saturated Stadium Avenue/Northwestern Avenue intersection as well as an alternate north-south route. The diversion of traffic to the North Intramural Drive extension will enable a more pedestrian-friendly environment to be established around the stadium/arena and along Stadium Avenue. The road will include a median, sidewalks, bike lanes, and landscaping.

4. Northwestern Avenue Improvement

Northwestern Avenue is planned to be widened to incorporate a raised median between Stadium Avenue and Cherry Lane (proposed North Intramural). The median will provide refuge for pedestrians crossing Northwestern Avenue and will restrict left turns at minor cross streets. The road will include sidewalks, bike lanes, and landscaping.

The construction of the perimeter boulevard will permit the implementation of traffic calming measures, such as closure of streets and making streets one way

on University Street, Waldron Street, and Russell Drive to discourage through traffic. This Plan also supports the improvement of transit by including the following:

- Reversing traffic flow on Grant Street.
- Providing pedestrian malls/bus lanes on segments of State Street, Third Street, University Street, and Intramural Drive.
- Removing cars from the core of the campus.
- Providing a perimeter roadway with adjacent parking facilities.

The proposed revisions to the street system will necessitate additional signage for motorists. A wayfinding sign system should be installed to complement and enhance the Transportation network in the campus area. Signage should be provided at major destinations (visitor center, Purdue Memorial Union, Stewart Center, Elliott Hall of Music, etc.) and parking garages.

The functional classification for the perimeter boulevard is proposed to be Urban Collector on Harrison Street, Airport Road, McCormick Road, Stadium Avenue, Grant Street, Chauncey Avenue, State Street, and Vine Street. The portion of the perimeter boulevard on Northwestern Avenue will remain classified as an Urban Other Principal Arterial. Williams Street is proposed as an Urban Collector. North Intramural Drive from Stadium Avenue to Northwestern is proposed as an Urban Minor Arterial

Projects and Cost Estimates

This Transportation Plan Amendment is designed for completion within twenty years. The intent is to use federal aid funding for most of the elements included in this Amendment. However, the funding may come from several entities including state, local, University, and private sources. It is anticipated that one project will be constructed every 3-4 years.

Figure 3 illustrates and Table 1 lists the projects recommended for inclusion in the 2025 Transportation Plan. Costs have been estimated for preliminary engineering, right-of-way, and construction. These cost estimates are based on recent unit prices for similar public street projects and numerous assumptions about elements of the project including project limits. These estimates should be used only for planning purposes. Actual costs will only be known when contractors provide bids based on final plans and specifications. The phasing for the construction is intended to be in the order listed in Table 1. Some projects may need to be broken into two projects or combined with another project depending on the funding available.

TABLE 1
Project Location and Cost Estimate

No.	Street	Limits		Estimated Cost ¹	Proposed Start Date
1A	Williams Street	U.S. 231 to Grant Street	P =	\$550,000	2006
	Harrison Street	Chauncey Avenue to Intramural Drive	R =	\$100,000	2008
	Chauncey Avenue	Williams Street to Wood Street	C =	\$6,250,000	2010
1B	Grant Street	Northwestern Avenue to Williams Street	P =	\$70,000	2008
	Chauncey Avenue	Wood Street to State Street	R =	\$30,000	2009
	Northwestern Ave.	State Street to North Street	C =	\$650,000	2010
	Vine Street	North Street to Fowler Avenue			
2	Stadium Avenue	Northwestern Ave. to Intramural Drive	P =	\$250,000	2011
			C =	\$2,850,000	2014
3A	Harrison Street	Intramural Drive to Airport Road	C =	\$4,600,000	2015
	Airport Road	Harrison Street extended to State Street	P =	\$400,000	2018
3B	McCormick Road	State Road to Stadium Avenue	P =	\$400,000	2017
	Stadium Avenue	McCormick Road to Intramural Drive	C =	\$4,700,000	2020
4A	No. Intramural Dr.	Stadium Avenue to Northwestern Ave.	P =	\$350,000	2019
			C =	\$3,950,000	2023
4B	Northwestern Ave.	Intramural Dr. to Stadium Avenue	P =	\$300,000	2022
			C =	<u>\$3,600,000</u>	2025
				<u>\$29,050,000</u>	

¹ P = Preliminary Engineering
R = Right-of-Way
C = Construction

Environmental Justice

The projects proposed above were assessed based on the three principles listed in the Transportation Plan for 2025.

Principle One: *avoid, minimize or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations.*

The projects that comprise the perimeter boulevard are located in census tracts that have a higher than average population of minorities and persons of low income. The original Transportation and Parking Plan, 2001 proposed for Purdue University has been modified in two ways that will lessen the impact on residents as follows:

1. The proposed extension of Williams Street from Grant Street to the Sheetz Street/Harrison Street intersection has been eliminated. The extension would have removed several houses and apartments and thus deprived students of housing opportunities. The Plan included in this Amendment does not remove any housing.
2. The extension of Harrison Street to Airport Road has been relocated. The original Plan was to locate this portion of the perimeter boulevard on Nimitz Drive resulting in isolation of a substantial number of housing units in Purdue Village (also known as married student housing) outside the perimeter roadway and creation of a barrier in the neighborhood. The current Plan locates the boulevard south of the housing units, such that residents will not have to cross the perimeter boulevard to get to campus. This Plan will cause the removal of some housing units on the south end of the complex.

Currently, Purdue Village has 1,014 units, which serve the following:

- a. Married students or students with families.
- b. Freshman students who can not be accommodated in residence halls.

c. Faculty and staff needing temporary housing.

The first priority for use of the facilities is married students and students with families, with about 800 units being used this year. HUD assistance is currently being provided to people in seven (7) of the units. This is down from the maximum number of 20 in any one year. Approximately 80 percent of the units are occupied by international students and their families.

The boulevard will be designed to minimize the number of removals by considering design speed, lane widths, and location in a context sensitive manner. Subsequent to the Transportation and Parking Plan development, the Campus Master Plan for Purdue has been revised to retain several units north of Nimitz Drive. The retention of these housing units will help to mitigate the loss of units due to the perimeter boulevard.

The Planned projects do not have any other negative impacts on minority and low income persons. On the other hand, the projects provide improvements for the area residents by providing an improved transit system, with free ridership, and by substantially reducing the pedestrian-vehicular conflicts in the core of the campus. Furthermore, the perimeter parkway will provide a buffer between the housing units in Purdue Village and the new U.S. 231, a high-speed primary arterial carrying large volumes of traffic including heavy trucks.

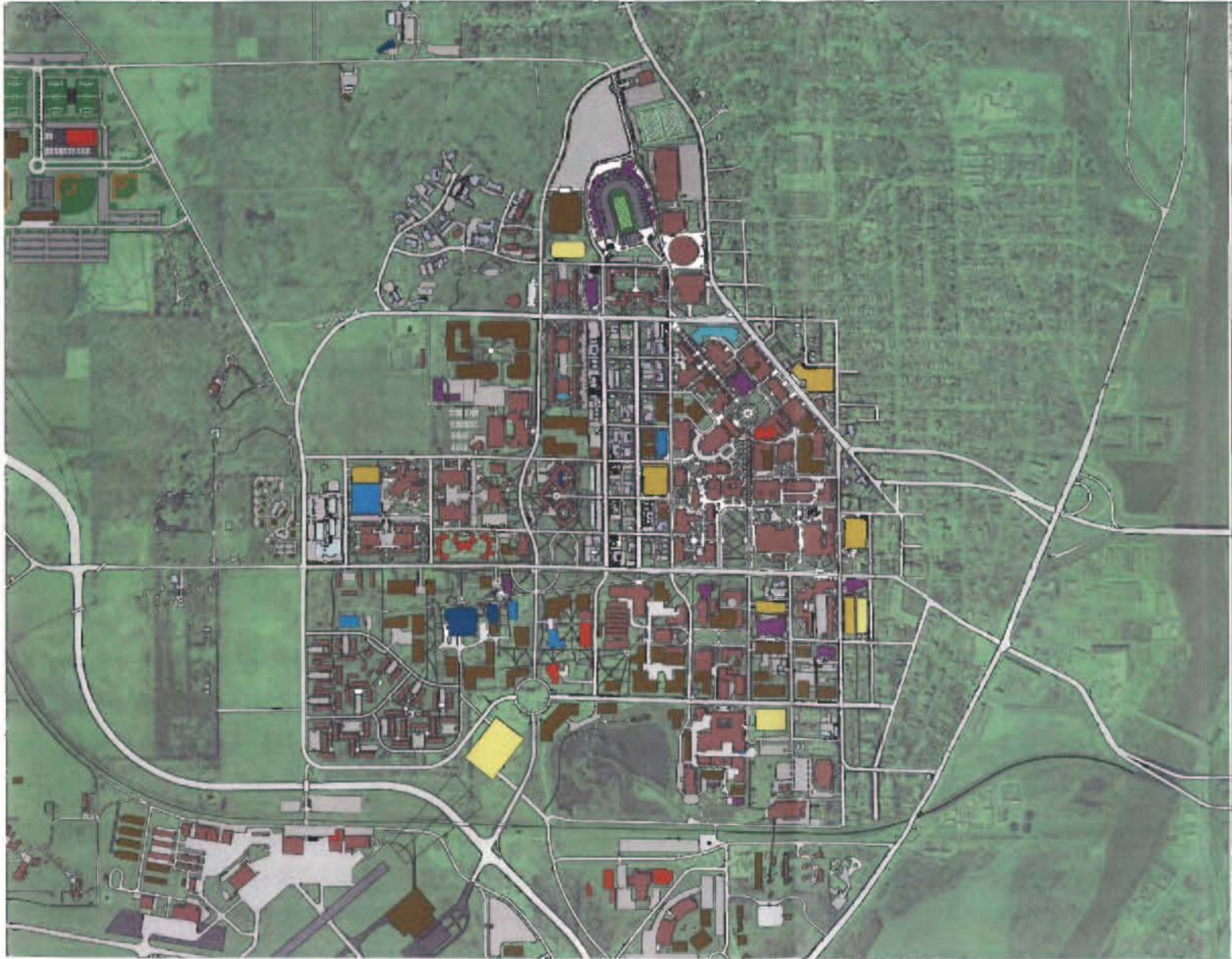
Principle Two: *ensure the full and fair participation by all potentially affected communities in the transportation decision making process.*

During the development of the Transportation and Parking Plan, meetings were held with local agency representatives. In addition, a public informational meeting was held on April 25, 2001 to present a preferred alternative and receive input from attendees. On June 16, 2004 a proposed plan for one-way streets on Grant Street and Chauncey Street/Northwestern Avenue/Vine Street in the

Village was presented to the merchants for their input. The Plan was also presented on September 14, 2004 to Purdue and West Lafayette Community Issues teams, a committee that includes West Lafayette and Purdue officials, and representatives of various student organizations.

Principle Three: *prevent the denial of, reduction, or significant delay in the receipt of benefits by minority and low-income populations.*

The projects in this Amendment were identified through a planning process that included the traffic model results and public comment. The projects included are distributed throughout the campus area and do not favor one segment of the population over others. The phasing was based on need, financing, and the Purdue Campus Master Plan for future development.



PURDUE
UNIVERSITY
West Lafayette
Campus

**FIGURE 1
MASTER PLAN**

PROJECT SCHEDULE LEGEND

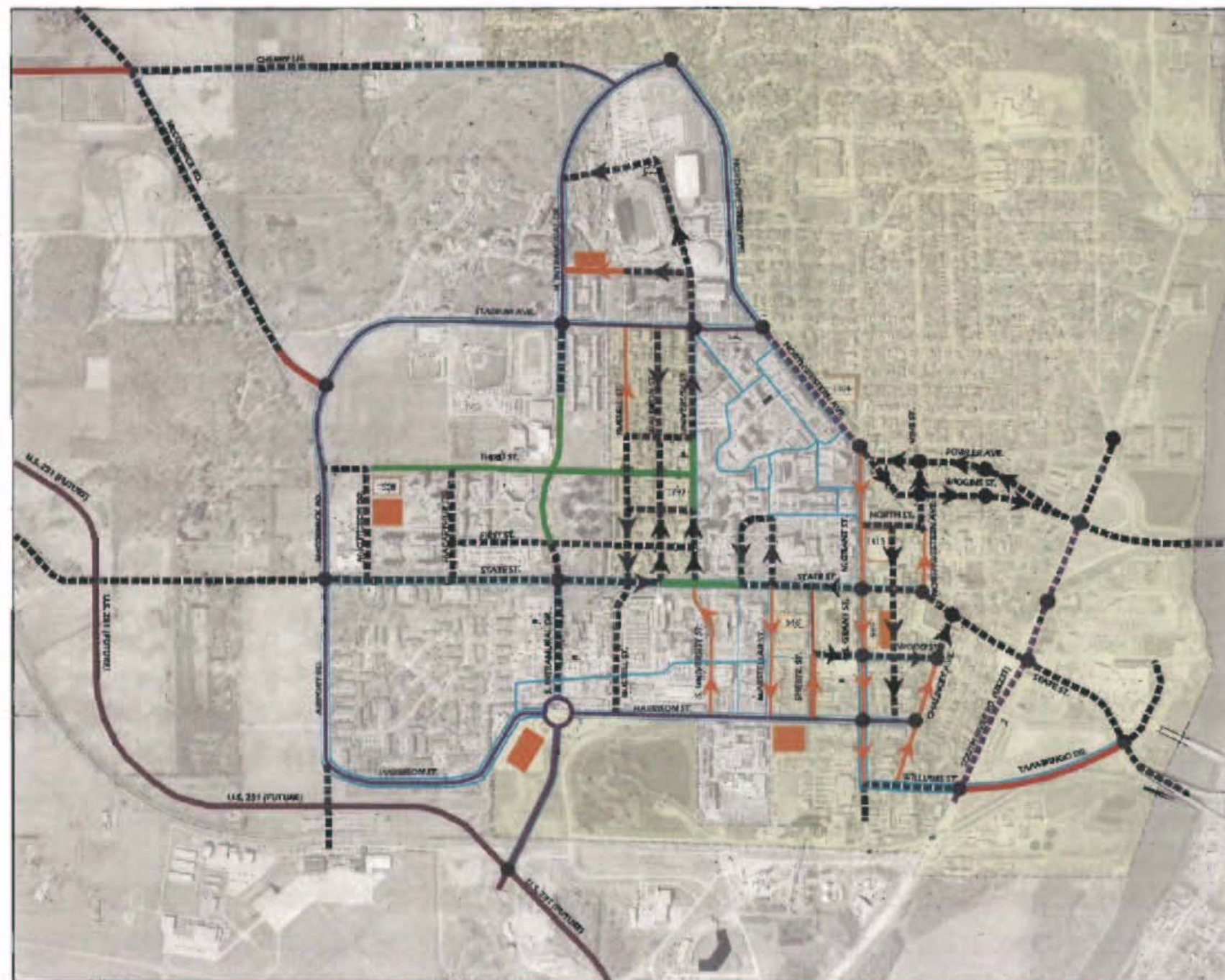
- EXISTING CAMPUS BUILDING
- POTENTIAL BUILDINGS/LOTS OCCUPANCY (DISPENSARY)
- OCCUPIED 2003-2004
- PROJECTED 2003 OCCUPANCY
- PROJECTED 2004 OCCUPANCY
- PROJECTED 2007 OCCUPANCY
- PROJECTED 2008 OCCUPANCY
- EXISTING CAMPUS GARAGES
- PROJECTED ADDITIONAL CAMPUS GARAGES

This Purdue University, West Lafayette Campus, Master Plan map is only to be used as a planning tool. It depicts only one set of possibilities with everything subject to change.

Do not use this map for planning purposes without contacting the Office of the University Architect for the latest information.



12-7-04



WEST LAFAYETTE/ TIPPECANOE COUNTY
TRANSPORTATION PLAN
FOR THE PURDUE UNIVERSITY AREA

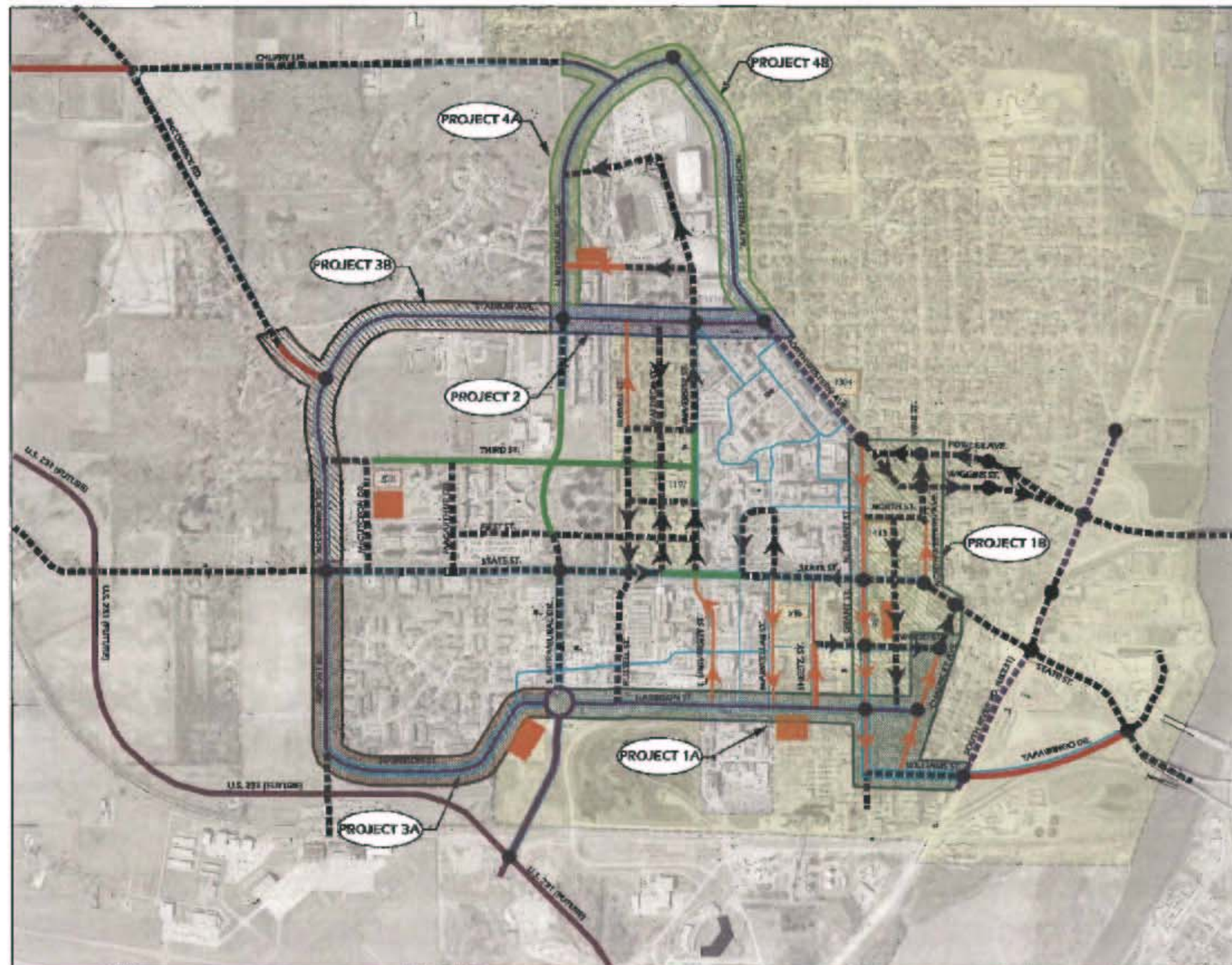
FIGURE 2
SYSTEM PLAN

LEGEND

- 4 LANE DIVIDED PARKWAY - EXISTING
- 4 LANE DIVIDED PARKWAY
- 2 WAY TRAFFIC - CHANGE
- PEDESTRIAN/BICYCLE/TRANSIT SERVICE/EMERGENCY STREETS
- ONE WAY TRAFFIC EXISTING
- TWO WAY TRAFFIC EXISTING
- ONE WAY STREET CHANGE
- BIKE LANE
- SIGNALIZED INTERSECTION
- ENHANCED INTERSECTION (SIGNALIZED OR ROUNDABOUT)
- SPACES GARAGE PARKING EXISTING
- GARAGE PARKING PROPOSED
- WEST LAFAYETTE CITY LIMITS



12-3-04



WEST LAFAYETTE/TIPPECANOE COUNTY
TRANSPORTATION PLAN
FOR THE PURDUE UNIVERSITY AREA

FIGURE 3
SYSTEM PLAN

LEGEND

- 4 LANE DIVIDED PARKWAY - EXISTING
- 4 LANE DIVIDED PARKWAY
- 2 WAY TRAFFIC - CHANGE
- PEDESTRIAN/BICYCLE/TRANSIT SERVICE/EMERGENCY STREETS
- ONE WAY TRAFFIC EXISTING
- TWO WAY TRAFFIC EXISTING
- ONE WAY STREET CHANGE
- BIKE LANE
- SIGNALIZED INTERSECTION
- ENHANCED INTERSECTION (SIGNALIZED OR ROUNDABOUT)
- SPACES GARAGE PARKING EXISTING
- ORANGE GARAGE PARKING PROPOSED
- WEST LAFAYETTE CITY LIMITS
- PROJECT 1A PROJECT 3B
- PROJECT 1B PROJECT 4A
- PROJECT 2 PROJECT 4B
- PROJECT 3A



12-3-04